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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/737,042 10/30/96 HEED

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QM02/1129

EXAMINER

LEO, L

ART UNIT	PAPER NUMBER
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3743

DATE MAILED:

11/29/00

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

08/737,042

Applicant(s)

Heed

Examiner

Leonard R. Leo

Group Art Unit

3743



☒ Responsive to communication(s) filed on Sep 19, 2000

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 5, 7, and 8 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 5, 7, and 8 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Objections

The numbering of claims is not accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be renumbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 12-13 have been renumbered 7-8. Claims 5 and 7-8 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Davis in view of Jenssen.

Davis discloses a recuperative heat exchanger comprising a casing defined by walls 11-16 having inlet and outlet ports 21, 21', 18, 22; a heat transfer package 30, 31 having a plurality of connected rectangular planar elements 36 with corrugations extending the entire

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length and width thereof, the planar elements being folded in an accordion-like manner; but does not disclose adjacent planar elements forming a crossing pattern with the corrugations.

Jenssen discloses a heat exchanger comprising a casing defined by parts 1, 2 having inlet ports 6-9; a heat transfer package 3 having a plurality of connected rectangular planar elements 36 with corrugations 13b extending the entire width thereof, the planar elements being folded in an accordion-like manner; wherein the corrugations 13b extend at an angle greater than 45 degrees with respect to the net flow path for the purpose of increasing flow resistance to improve heat exchange.

Since Davis and Jenssen are both from the same field of endeavor and/or analogous art, the purpose disclosed by Jenssen would have been recognized in the pertinent art of Davis.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Davis corrugations extending at an angle greater than 45 degrees with respect to the net flow path for the purpose of increasing flow resistance to improve heat exchange as recognized by Jenssen.

Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis in view of Jenssen as applied to claim 5 above, and further in view of Zebuhr.

The combined teachings of Davis and Jenssen lacks covering elements.

Zebuhr discloses a heat exchanger comprising a casing 12 (Figure 1); a heat transfer package 14 having a plurality of connected rectangular planar elements 35 folded in an accordion-like manner along fold lines 44; wherein top and bottom end covering elements

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(Figure 6) for the purpose of sealing the ends against leakage (column 6, line 54 to column 7, line 4).

Since Davis and Zebuhr are both from the same field of endeavor and/or analogous art, the purpose disclosed by Zebuhr would have been recognized in the pertinent art of Davis.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Davis top and bottom end covering elements for the purpose of sealing the ends against leakage as recognized by Zebuhr.

Response to Arguments

Regarding applicant's remarks with respect to the combination of Davis and Jenssen, Jenssen Figure 3 shows corrugations extending the entire width of the respective planar elements, except at fold lines 12 as in applicant's instant invention as claimed. Arguendo, the secondary reference of Jenssen is not relied upon to teach what the primary reference of Davis already discloses. However, Jenssen is relied to teach one of ordinary skill in the art to employ corrugations extending at an angle greater than 45 degrees with respect to the net flow path for the purpose of increasing flow resistance to improve heat exchange. This teaching is clearly demonstrated by the prior art of record, e.g. Raunio, Hultgren, Usher, and only requires routine skill in the art. This teaching and motivation is not disputed by applicant and is deemed correct.

Applicant's remaining comments have been considered and are not persuasive.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center 3700 receptionist whose telephone number is (703) 308-0861.

Any inquiry concerning this communication should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.


LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3743

November 28, 2000